Appl. No. 10/816,015
Amdt. Dated December 13, 2006
Reply to Office Action of September 13, 2006

REMARKS/ARGUMENTS

This is responsive to the Office Action mailed on September 13, 2006. In the Office action claims 1-21, 23-33 and 35-44 were rejected and claims 22 and 34 were objected to as being dependent upon a rejected base claim, but were deemed allowable if rewritten in independent form including all of the limitations of the base claims.

Claims 1 and 44 were objected to due to certain informalities.

Claims 1, 2, 5, 8-10, 12, 14, 15, 17, 18, 23-26, 41, 42, and 44 were rejected under 35 U.S.C. §102 (e) as being anticipated by Zhou et al. (U.S. Patent Application No. 2004/0213378, hereinafter "Zhou 378").

Claims 3, 4, 6, 7, 11, 16, and 19-21 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Zhou 378 in view of Zhou et al. (U.S. Patent Application No. 2002/0094064, hereinafter "Zhou 064"). Claim 13 was rejected under 35 U.S.C. §103 (a) as being unpatentable over Zhou 378 on view of Price et al. (U.S. Patent No. 2002/0085674, hereinafter "Price"). Claims 27, 29, 30, 35, 36, and 43 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Zhou 378 in view of Ning (U.S. Patent No. 6,504,892, hereinafter "Ning"). Claims 28, 31-33 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Zhou 378, Ning and Zhou 064. Claims 37-40 were rejected under 35 U.S.C §103 (a) as being unpatenable over Zhou 378 in view of Ning and Hsieh et al. (U.S. Patent No. 5,225,980, hereinafter "Hsieh").

Claims 1, 3-5, 8-15, 18, 21, 27, 30, 33, 37, 39-41 have been amended to remove the informalities as pointed out by the Examiner. Applicants thank the Examiner for pointing out the claim informalities. Claims 2, 38, and 42 have been cancelled and claims 45-47 have been added as new claims. No new matter has been added. Claims 1, 3-37, 39-41, 43-47 remain pending.

Claims define allowable subject matter over the applied art

The independent claims 1, and 41 were rejected under 35 U.S.C. §102 (e) over Zhou 378. Claims 1 and 37 have been amended to recite the subject matter more clearly. Applicants respectfully traverse the rejection of independent claims 1, and 41, under 35 U.S.C. §102 (e) as being anticipated by Zhou 378. To anticipate a claim under 102, each and every element of the claim must be taught by the reference.

Applicants maintain that Zhou 378 does not disclose, teach or suggest the claim recitations of **"one or more distributed X-ray sources rotate around the scanner aperture in relation to the imaging volume during an imaging sequence"**, as recited in amended independent claims 1, and 41 (emphasis added).

Zhou 378 describes a CT system with an x-ray source that includes a cathode with multiple individually programmable electron emitting units. See, Abstract.

Examiner has referred to paragraph 71, lines 10-12 in Zhou as a teaching for the rotating sources. However, Zhou primarily teaches a stationary arrangement of source and detectors in this paragraph:

The text from paragraph [0071], lines 10-12 in Zhou states that:

> Another exemplary embodiment of a computed tomography device is shown in FIG. 8. The computed tomography device 800 comprises an electron beam source 802, an object stage 804, an area detector 806. The circular x-ray source consists of an array of the x-ray producing elements facing the center of a circle. The detectors are in a similar arrangement positioned adjacent the source circle. By controlling each of the x-ray sources individually, multiple slice projections may be produced, **requiring no rotation of the detectors or x-ray source. A slight (15 degrees or less) rotation may be incorporated into either the source or the detectors to provide increased radial resolution.** (emphasis added)

Applicants respectfully submit that the mention of slight rotation of source and detectors for radial resolution purpose cannot be construed as the rotation about the scanner aperture for the purpose of imaging the object. Zhou 378 in FIG. 8 and the related description in paragraph [0071] very clearly discusses only the stationary arrangement of the source and detector.

Thus the Applicants respectfully submit that the independent claims 1, and 41, are not anticipated by Zhou 378 under 35 U.S.C. §102 and therefore, are allowable. Claims 15, 17, 18, 23-27, 29, 30, 35- 38 depend directly or indirectly from claim 1, and claims 43 and 44 depend on claim 41. These dependent claims are similarly allowable.

In view of the foregoing remarks, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. §102 (e).

Under 35 U.S.C. §103 (a) rejections different sets of claims as summarized above have been rejected over at least Zhou 378 and Zhou 064.

Zhou 064 describes a structure to generate x-rays that has a plurality of **stationary and individually electrically addressable field emissive electron sources** with a substrate composed of a field emissive material, such as carbon nanotubes. Electrically switching the field emissive electron sources at a predetermined frequency field emits electrons in a programmable sequence toward an incidence point on a target. (See, Abstract). Zhou 064 does not obviate the deficiencies of Zhou 378 with respect to distributed source rotation, and therefore no combination of Zhou 378 and Zhou 064 leads to Applicants' invention as recited in independent

claims 1, 37, and 41. Further, Examiner has referred to Zhou 064 as a teaching for two-dimensional arrays in the distributed sources as claimed in the dependent claims. However, Applicants respectfully submit that Fig. 4, element 404, as indicated by the Examiner does not teach two-dimensional source arrays. Element 404 is a target structure, thus merely a component of the x-ray source. And with respect to the target structure 404, Zhou 064 states the following in paragraph [0038]:

> On example of an embodiment of a device to record x-ray images is shown in FIG. 4 in cross sectional view. The device 400 to record x-ray images has a cathode structure 402, **a target structure 404**, an object positioner 406, and a detector 408. The cathode structure 402 can be in the form of a single cathode or a plurality of cathodes. In the embodiment shown, the cathode structure 402 is arranged as a ring to correspond to the overall shape of the chamber 410. Similar to the cathode structure 402, the target structure 404 can be in the form of a single target or a plurality of targets. In the embodiment shown, **the target structure 404 is arranged as a ring to correspond to the overall shape of the chamber 410.** (emphasis added)

Thus clearly there is no teaching in the above paragraph, that the x-ray source is a two- dimensional array of sources.

With respect to the secondary reference of Ning, Examiner has referred to Fig. 7 in Ning as a teaching for rotational source and detector. Ning primarily describes a cone beam volume computed tomography (CBVCT) system in which imaging is carried out by taking signals along an orbit having a circle plus two or more arcs. (See, Abstract). Fig. 7 in Ning and the related discussion in column 14, lines 34-57, shows a standard CBVCT system, with an X-ray source and a 2-D detector on a gantry that rotates. However, Ning does not disclose, teach or suggest a distributed source and does not describe distributed source movement about a scanner aperture. Those skilled in the art would very well understand that the standard gantry rotation is distinct from the distributed source rotation as recited in the independent claims.

Irrespective of what the other secondary references of Price and Hsieh teach or do not teach with respect to the dependent claims, they still do not overcome the deficiencies of Zhou 378 with respect to **"one or more distributed X-ray sources rotate around the scanner aperture in relation to the imaging volume during an imaging sequence"**, as recited in independent claims 1, 37 and 41.

Each of claims 3-36 depends from claim 1, each of claims 39-40, depends from claim 37, and each of claims 43-44 depends from claim 41. Applicants believe that claims 1, 37, and 41 are in condition for allowance over the applied references for the reasons discussed above..

In view of the foregoing remarks, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. §103 (a).

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New claims

Claims 45-47 have been added as new claims and primarily have the recitations of the cancelled claims 2, 38, and 42 written in an independent form. The support for the claims can be found in Fig. 3 and paragraph [0029] of the specification. Applicants also submit that none of the cited references teach a "distributed detector" as recited in the claims 45-47.

Summary

In view of the foregoing, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,

By _____

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